

several factors in one region of a chromosome have been discovered. NILSSON-EHLE¹² now claims to have such a case, and calls it "complexmutation." Normal wheat mutates to bearded speltoid, involving a simultaneous change in two closely linked factors. Among the F_2 progeny of normal \times mutant appear a few bearded normal type and beardless speltoid, but only a very few, due to the very close linkage of the two mutated factors. In another case the investigator claims that three linked factors have mutated simultaneously.—M. C. COULTER.

Ozark forests.—The Ozark region, as covered by PALMER¹³ in this reconnaissance, is defined as occupying the southern half of Missouri, a narrow spur crossing southern Illinois, the northwestern part of Arkansas, and a long triangular strip in eastern Oklahoma. The two topographic divisions of this uplifted region, lying midway between the higher mountains of the east and west, are the flat-topped dome of the northern plateau with an average altitude of 300–500 m., and the southern Boston Mountains with a few points above 600 m. It is a hill region surrounded by fertile plains, and possessing a rather abundant rainfall. Floristically there are no distinct floras corresponding to the topographic divisions, although the southern parts of the region, including the Boston Mountains, have a heavier forest growth richer in types than the northern, and include such southern forms as *Aesculus discolor*, *Tilia floridana*, *Rhamnus caroliniana*, *Ilex decidua*, and *Magnolia acuminata*.

The larger portion of the report is occupied by floristic notes on various sections of the flora and on certain genera and species. The author is convinced that in the region as a whole there is a demonstration of the gradual but actual encroachment of forest upon prairie lands.—GEO. D. FULLER.

Temperature and nodule development.—Using soil temperatures ranging from 12° to as high as 40° C., JONES and TISDALE¹⁴ have studied the effect of these temperatures on the development of nodules by alfalfa, red clover, soy beans, and field peas. The results as to the number of nodules developed were not so very consistent, but when the dry weight of the nodules was determined, it was found that the greatest development, in the case of the soy bean, was at 24° C. This effect of temperature on nodule development is not correlated with a corresponding effect on root and shoot development. It is pointed out in the paper that the real question in a study of this kind is not the effect of temperature on the number of nodules developed by the plants, or on the volume of these nodules, but the effect on the amount of nitrogen fixed in the nodules.

¹² NILSSON-EHLE, H., Multiple Allelomorphe und Komplexmutationen beim Weizen. *Hereditas* 1:277–311. 1920.

¹³ PALMER, E. J., The forest flora of the Ozark region. *Jour. Arnold Arboretum* 2:216–232. 1921.

¹⁴ JONES, F. R., and TISDALE, W. B., Effect of soil temperature upon the development of nodules on the roots of certain legumes. *Jour. Agric. Res.* 22:17–31. pls. 1–3. 1921.